

How to find your genetic homeland

Modern science can confirm the ancestral link to an area by DNA testing its current inhabitants. Piece together your paper trail and combine that with a fuller understanding of genealogical DNA tests, and you could be on track to find out where your ancestors were living 1,000 years ago, as **Dr Tyrone Bowes** explains.

A commercial ancestral Y-chromosome DNA test will potentially provide you with the names of many hundreds of individuals with whom you share a common male ancestor, but what often confuses people is how you can share common ancestry

with many individuals with different surnames? The answer is simple. Roughly 1,000 years ago your direct male ancestor, the first for example to call himself 'Paterson', was living in close proximity to others with whom he was related but who took other surnames such as Campbell,

In brackets are the number of individuals with each surname that appear as a match. Only surnames that appear greater than three times are shown. Coloured font indicates the ethnicity associated with each surname; blue for Scottish, black font indicates multiple ethnicities.

Figures after the brackets denote: 1 Multiple individuals from the same family recruited for Y-DNA testing and excluded from further analysis. 2 McGregors in disguise (they had to change their surname, when it was banned in 1603). 3 Most matches occur at the 12 marker level and hence the shared ancestry may be coincidental. 4 Johnson may be anglicised McKay (Son of John).

Each surname appears at the earliest point at which it occurs. For instance, the first match to another Paterson occurs at 66/67 markers but not all Patersons/Patersons will match at that level.

Figure 1: Mr Patterson's genetically recurring surname matches. The Y-DNA test examined 67 bits (or markers) on the Y-chromosome and compared these markers to other males who have tested. The more markers you share with another male the more recent their common male ancestor lived.

Commercial Ancestral Y-DNA Test Results								
Test subject	exact	-1	-2	-3	-4	-5	-6	-7
Patterson		Henderson(x5) Patterson(x6) Norton(x4) Stewart(x7)	McCoy(x6)/McKay(x2)/Kies(x1) Logan(x11)	Stephenson(x4)3 Turner(x14)17 Johnson(x14)4 Edwards(x5)17 Tate(x6) Chisholm(x6) McLean/MacLean(x6)/McClain(x2) McDonald/MacDonald(x18) Rock/Rocks(x6)	McPherson/MacPherson (x15) St Clair/Sinclair(x4) Cooper(x6)1 McKenzie/MacKenzie(x5) McCaw(x3) Walker(x5) Rose(x7) McGregor/MacGregor(x25) Davie(x2) McFarland/MacFarland/McFarlin/MacFarlane(x3) McIntor(x4)/McInturk(x1)17	Young(x5) Valentine(x4)2 McNeil/MacNeil(x4) Cowan(x3) Alexander(x30) Mitchell(x9) Drummond(x3) Campbell(x100) Allan/Allen(x6) McAlister(x3) McRae/McCray(x22) Buchanan(x30) McLaren(x8)/McLaurin(x1) McKinney(x3)/Kenny(x1) McComick(x6) Henry/McHenry(x6) Lawrie(x3) Hamilton(x5) Walton(x3) Miller(x8) McAikell/MacAikill Sutherland(x7)1 Brown(x5) Harvel(x4)1 Taylor(x5) Forbes(x5)1	Wright(x4) Rodgers/Rogers(x5) Robinson(x4) Hamilton(x3) Lindsey(x4) McCallum(x5) Robertson(x4) McMillan(x5) Davidson(x5)/Davidson(x2) Curry(x3) Templeton(x9)1 Turner(x15)17 Boulton(x1)17 McIntosh(x3)/MacKintosh(x1) Fraser(x4) Stirling(x5)1 Oake(x3)	Coburn/Coburn/Cogburn(x5) McCurdy(x2) Davenport(x4) Dunbar(x5) Barnett(x4) Rose(x7) Kincaid(x3) Iwry/Erwin(x5) Graham(x6) Craigiles/Craigyles(x4) Anderson(x3) Scott(x2) Matheson(x7) Bruce(x3)
	0-200	200-400	400-600	600-800	800-1000	800-1000	1000-1200	1200-1400

McGregor and Buchanan. In the 1,000 years since surnames became common, there will be many descendants of those first Patersons, Campbells and McGregors, some of whom will today take a Y-DNA test. Hence the surnames of your medieval ancestor's neighbours will be revealed in today's Y-DNA test results.

In the UK and Ireland surnames can still be found concentrated in the area where they first appeared. You can therefore use census data to determine the origin of the surnames that appear in your Y-DNA results, identify an area common to all, and reveal what scientists call the 'Ancestral Genetic Homeland'. This will be the area where your ancestors lived for hundreds if not thousands of years. It is the area where your ancestor first picked his surname surrounded by relatives who picked others. It is the area where your ancestors left their

mark in its placenames, its history, and in the DNA of its current inhabitants. Modern science can confirm the ancestral link to an area by DNA testing its current inhabitants.

Find your genetic homeland

The first step to identifying your ancestral genetic homeland is to identify the surnames that continually appear as genetic matches in your Y-DNA results as these will reflect the surnames of your medieval ancestors' neighbours.

The genetically recurring surnames for a 'Mr Patterson' are shown in **Figure 1** (page 18). The Y-DNA test results revealed that Mr Patterson is a genetic match to others called Paterson indicating that he has retained the surname of a 'son-Adam' (the first to take that surname) who lived approximately 1,000 years ago. What the results also reveal is that

Mr Patterson's genetically recurring surname matches are associated exclusively with Scotland or are found within Scotland (this is not unexpected as Paterson is a Scottish surname). More precisely, though, surname distribution mapping indicates that Paterson is associated with multiple locations within Scotland, which means that 1,000 years ago there were a number of unrelated Paterson-Adams living in various parts of Scotland. However, Mr Patterson's surname matches are to Scottish Highlander surnames, ruling out an ancestral link with Lowlander Patersons (**Figure 2**).

Identify your surname-'Adam'

So which Highlander Paterson-Adam is the test subject (Mr Patterson) descended from, and where did he live? This can be answered by examining where within northern Scotland Mr Patterson's closest

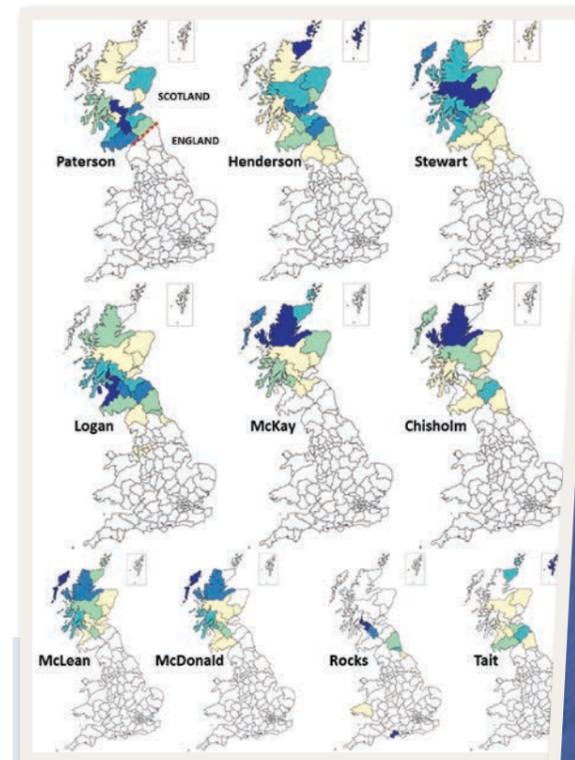


Figure 2: 1881 surname distribution maps reveal a paternal ancestral link with the Scottish Highlands. The Paterson surname is associated with multiple locations indicating multiple Paterson-Adams living in different geographical areas. The predominance of matches to notable Highland surnames rules out an ancestral link to Lowlander Patersons.

Figure 3: The 1841 Paterson farming communities north of the Clyde and the Firth of Forth. Pins have been placed in the parishes where Paterson farmers lived in 1841 revealing multiple origins for the Highlander Patersons. Pin size is indicative of frequency. Clan Paterson folklore records the northern shore of Lough Fyne as their ancestral homeland.

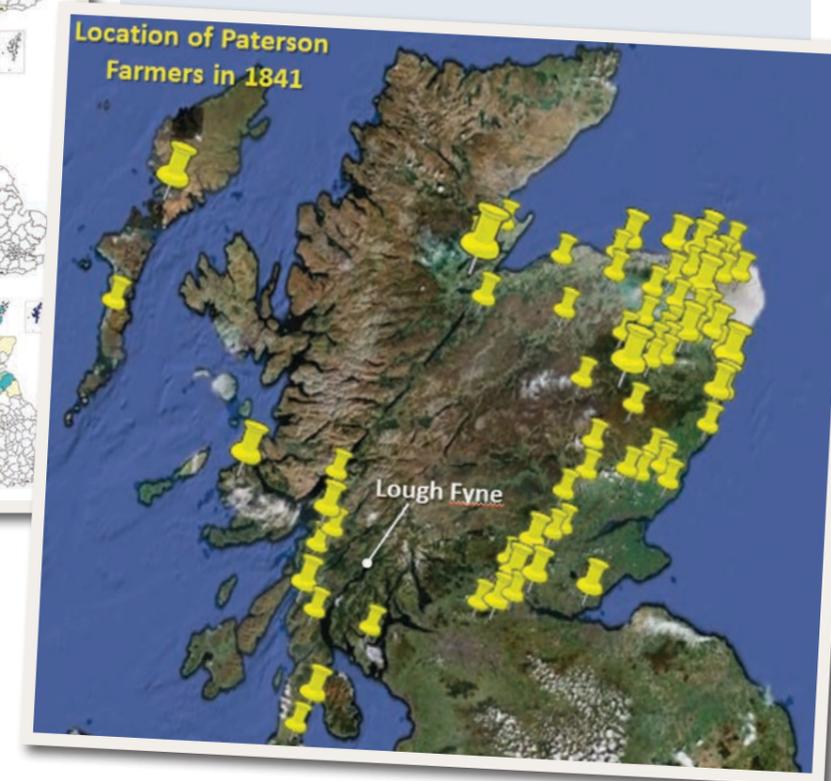




Figure 8: Mr Patterson's 'Paternal Ancestral Genetic Homeland'. The more distant genetic matches to Campbells, McGregors, Buchanans, McFarlanes, McArthurs and McAskills etc reveal a paternal ancestral link to the area surrounding Lough Fyne, the historic home of Clan Paterson.

Home in on your origins

Following the introduction of newly inherited surnames, when you examine the surnames that appear in Mr Patterson's Y-DNA results from this time period (Figure 1) you will notice many matches to surnames associated with the Highlands of Argyllshire. The most prominent clans that appear in Mr Patterson's Y-DNA results from the time when newly inherited surnames became common include the Campbells (>100 individual matches), McGregors (>25), Buchanans (>30), McFarlanes (x9) and McLarens (x9). There are also find some notable surnames such as the McAskills (x3) and McArthurs (x5) – surnames that are exclusively associated with Argyllshire. When you examine the historical evidence for these clans in Argyllshire an interesting discovery is made! They are all found in the lands surrounding the northern shore of Lough Fyne, placing Mr Patterson's paternal ancestral genetic homeland at the historical centre of Clan son (**Figure 8**, above).

Mr son's Y-DNA results demonstrate that when surnames became common in the 9th century AD his son-Adam lived on the northern shore of Lough Fyne. His son-Adam lived surrounded by relatives who became the Campbells, McGregors, Buchanans etc of the Scottish Highlands. At some point between AD1200 and AD1400 his ancestors migrated north to the Black Isle where

some became Logans, MacKenzies and Chisholms.

The Scots today are the descendants of a diverse mix of Picts, Scots (Irish-Gaels), Britons, Anglo-Saxons, Normans, Vikings and even Romans. Amazingly the Y-DNA results can reveal which of these ethnic groups your Scots ancestors descend from. A striking feature of Mr Patterson's Y-DNA results is the overwhelming presence of Scottish surnames throughout his genetic matches. There are very few matches to Irish, English, Welsh, Scandinavian, or indeed mainland European surnames – which would indicate Gaelic/Scots, Anglo-Saxon, ancient Briton, Viking, Norman or Roman ancestry respectively. The exclusive Scottish nature of his genetically recurring surname matches and their overwhelming association with the area north of the Clyde and the Firth of Forth indicate that Mr son is descended from the ancient Picts who were themselves the descendants of some of the earliest people to colonise Scotland.

About the author

Dr Tyrone Bowes realised that his ancestral DNA test results could be used to pinpoint precisely where his direct male ancestor lived when he first picked his surname some 1,000 years ago. He now runs IrishOrigenes.com, EnglishOrigenes.com and ScottishOrigenes.com to show others how to use ancestral DNA test results to pinpoint their own origins.

